# CRITICAL MAKING: AMISH INNOVATION FOR COMMUNITY EMPOWERMENT

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## Introduction

This paper identifies one communication strategy used by the Amish to protect their cultural autonomy in the digital age. Based on recent ethnographic fieldwork in two Indiana Amish settlements and artifact analyses of devices appearing in advertisements in a popular Amish trade journal, this paper explores the political implications of everyday socio-technical making practices. In particular, this paper explores everyday socio-technical innovations, including professional artifacts and arrangements, which reflect and protect Amish religious and cultural values in an increasingly digital economy. The innovations presented in this paper are positioned as mundane and everyday decisions and professional practices that have profound political implications for the empowerment of Amish communities to resist the assimilation of their culture in mainstream society in an increasingly globally networked world.

The Amish have a long history of deciding which new technologies to accept and which to reject. Generally a conservative religious group known for its members living pre-modern lifestyles, the Amish do not take a hard line against all new technologies, as some may think. Contrary to popular belief, the Amish do not seek complete isolation from the rest of the world. Like most of us, they participate in the global network society today in order to make a living, travel and maintain relationships across space. They are different from others though in that they care a great deal about the nature of their link to the global networked society. In particular, the Amish aim to regulate the communication channel that connects their local community to everyone else. One way of accomplishing this is creating new information communication technologies (ICTs) that reflect the need to engage in the 21st century economy, yet abide by their community's religious values.

Critical making is an emerging concept in Science and Technology Studies used to study the social arrangements surrounding and hacking and DIY practices. Matt Ratto first used the concept to "connect two modes of engagement with the world that are often held separate—critical thinking, typically understood as conceptually and linguistically based and physical "making," goal-based material work" (2011: 253). According to Carl DiSalvo, "'critical making' suggests a new form of design, through

which the political qualities of an issue are materialized by participatory means" (2014: 96). While existing scholarship primarily conceptualizes critical making as an intervention orchestrated by researchers, here, following Ashton (2015) making is explored as a common everyday phenomenon, embedded in an evolving socio-technical world. This analysis, then, extends our understanding of critical making by investigating the everyday circumstances that afford and constrain creative practices and by examining how its mundane nature among a marginalized group of people contributes to their empowerment.

These ideas will be used to frame Amish socio-technical workarounds as made artifacts and socio-technical arrangements that come to symbolize shared beliefs and values and mark the cultural boundaries of Amish communities. Within this framework, it will be suggested that Amish workarounds are functional and symbolic tools that act to protect Amish cultural autonomy in an increasingly digital, globally connected world. This analysis builds on existing scholarship that conceptualizes critical making as an intervention orchestrated by researchers. Here, making is explored as a common everyday phenomenon, embedded in an evolving socio-technical world (Ashton 2015). This analysis, then, extends our understanding of critical making by investigating the everyday circumstances that enable and constrain creative practices and by examining how its mundane nature among a marginalized group of people contributes to their political empowerment.

According to Ratto, DiSolvo and others (Ratto 2011; Ratto et al. 2014; DiSalvo 2014; Eglash and Banks 2014, Wylie et al. 2014), the focus of critical making analyses is neither the making process itself nor the politics in which such practices participate. It is the connection between these. Further, drawing on the work of media materiality scholars like Brian Larkin (2008), the process by which these made objects enforce certain regimes or beliefs through their presence will be explored. By investigating the meanings attached to technologies, their technical functions and the social uses to which they are put will provide insights into what it is to live as a particular kind of Amish subject (Larkin 2008). In effect, examining particularly Amish uses of technologies reveals unique, indigenous motivations that cannot be explained by market logic alone.

Data for this paper is comprised of two types of data: Interviews with 34 Amish business and church leaders conducted from 2011-2014 and content published in *The Plain Communities Business Exchange* (TPCBE), a national Amish trade journal. Most TPCBE readers do not have access to the internet and rely on mail publications to learn about and buy new products that meet their family's needs. According to TPCBE website, *The Plain Community Business Exchange*, is

> [Readers'] primary way to stay connected with happenings outside of their community. Many of these people also advertise their products to other plain communities and then ship them via UPS, FedEx and Mail. This creates a network that has been established years ago and still continues, however it is on a much larger scale in our current day and age. The networking of plain/conservative communities has always been an interesting subject and has captured a large audience. We are proud to be

a part of this communication between suppliers and purchasers and hope to continue to earn their loyal support in return.

Thus, the appearance of these products in TPCBE ascribes a legitimacy to them and indicates for many Anabaptist readers that adopting them is acceptable given church rules. Products not agreeing with (general) Amish socio-technical norms, are not likely to appear within this journal's pages (e.g. an ad for an automobile, radio or TV). However, it is common to see ads for internet-disabled word processors and "plain cell phones," which do not have the ability to text, email, surf the internet, etc. In this way, the technologies appearing in this publication communicate standards for what technologies are acceptable among Amish business owners and what are not. By surveying these artifacts, the boundaries within which it is safe to innovate, repurpose and use uniquely Amish technologies are also elucidated.

Interviews with Amish church and business leaders revealed that technology non-use acts as a political mechanism for preserving Amish religious values and traditions and promoting individual social and spiritual health. Participants reported feeling that their collective non-use practices empowered their communities by preserving Amish cultural autonomy in the digital age. This, they felt, made Amish individuals less susceptible to corporate and governmental ideologies promoting individualism, conspicuous consumption, mobility, fragmentation and anonymity.

## A spirit of Amish making

Throughout the industrial age and now in the information age, the Amish have adhered to the tradition of making as a primary form of work. Cabinet-makers, machine-builders, carpenters, buggy-makers, metal-workers furniture-makers, wood-workers and fence-builders are common professions among Amish businessmen today. Generally, they learn these skills from fathers, uncles and grandfathers. Among Amish businesswomen (who are slowly also entering the non-domestic workforce), many have craft or fabric shops or make quilts or food items like noodles, jams and candy to sell to tourists.

The continuity of this Amish professional tradition is the result of shared religious beliefs articulated by the earliest Amish revolutionaries in Europe during the 17th and 18th centuries. These beliefs have inspired individuals to live a practical, simple and humble lifestyle for centuries. Adherence to these beliefs today continues to shape occupational preferences among Amish workers. While most early Amish people were farmers, it was only in the last thirty years that this occupation became outmoded (Hurst & McConnell 2010).

Based on his observations of non-Amish workers today, a minister and successful business owner felt, "people in the United States can't make things any more. People need to humble themselves and make something useful." This he felt would help reduce unemployment in society. These sentiments capture feelings expressed by many other participants suggesting the type of work one chooses to do should be constrained by actual (not manufactured) demand and making products by hand (if not growing them), at a small-scale, so family members can work together, is inherently more rewarding than resorting to automatic, large-scale production methods.

According to many church leaders interviewed for this paper, maintaining separation between the Amish and non-Amish world was more important than expanding profits, power and/or efficiency. For them, the adoption of technology simply because it affords efficiency, does not fit within the worldview of an Amish entrepreneur who is pursuing a vision of professional success shaped by Amish values. Most business owners simply wanted to have enough work to live comfortable low-stress lives while still being able to provide for their families and employees families. Maintaining this separation, for them, required certain limitations on technology use.

These particular ideologies contribute to the reproduction of a distinct *spirit of Amish making* that uniquely inspires and constrains acceptable types of making done among practical Amish makers.

**Socio-technical Arrangements: Precarity as a Symbol of Amish Identity**

Noah, a business owner and minister was one of my closest informants during my fieldwork. According to him, whether or not you used a technology was less important than *how* you used it. During one of our many phone conversations, he told me a story about his father, who had recently passed away. Noah respected and admired his father a great deal. Twenty years ago, when Noah was still involved in farming (today he is a successful entrepreneur who spends most of his time working as a buyer for his growing construction company), he put a gasoline engine on a corn picker. At this time, this was not an approved technology, as corn picking was to be done the slow way, in which horse and human energy powered the picking process. Noah was the first in the area to do this. That year, he picked his corn and brother-in-law's corn. They both got in trouble, he said. However, "the next year, everyone had an engine hooked to their corn picker." As Noah, explained this, he said he came by the innovation characteristic naturally. He asked his dad why he never put an engine on his corn picker. His dad said, "Oh, I did that too—only once though. Everyone else was husking corn by hand." For his time, Noah said, his dad was also very progressive. Noah's story about attaching a gasoline engine to his corn picker reflects a designed precarity embedded into many Amish socio-technical arrangements. Had Noah not been Amish, he would have likely gone to a farming manufacturer and bought a combine to harvest his corn more efficiently. By simply attaching a common gasoline engine to a manual corn picker, Noah created a unique assemblage that could be taken apart, if necessary and was purposefully limited in its function.

Chuckling as he told this story, Noah wondered why he always ended up being the "horse's rear-end" that came up with innovations. In his construction company, which is only about eight years old, Noah realized early on that he and his co-owners needed computerization to manage the intense growth in business. At one point he and his co-owners realized that they had been underpricing goods, which resulted in a $200,000 loss. He did not have a digital organization or inventory system in place, and as their business grew, they could not keep up with what their inventory was worth. This, he said, "bit really hard." They went through a few different solutions until settling on one that worked. First, they brought someone in to implement a computerized inventory system using a computer that was "internet-disabled" and point of sale software so that

inventory counts would be up to date. This would allow the business owners to know what they sold. Although, he felt this was the right solution for his business, he and his co-owners were not sure it was the best ethical or religious choice.

When he originally came up with the idea to implement a computerized point of sale system, he proposed it to his fellow owners not knowing how they would react. He was the oldest among them and wanted to act when he realized the $200,000 loss. The others, to his surprise, were relieved. They agreed to incorporate the new system right away. On the day the day Noah was telling me this, he received a phone call from a fellow co-owner asking what he thought about bringing on a non-Amish co-owner. If they made this person a "majority owner" then they could have a more high-tech business operation, he said. This person could also bring tech savvy to the business that was sorely needed among the current owners to help implement the new computerized system. Noah was in support of it. Although, he realized it was a difficult choice, he wanted the business to do well and felt relieved that someone had suggested this possible solution. Eventually, this solution fell through, though.

Noah and his colleagues eventually came up with another solution to introduce computerization and broadband connectivity to help them manage their growing business. Being a minister, he realized that he could not take the lead in such an initiative, as they are expected to set a good example for others. One of his partners in the business, Dan, however, was not a minister and agreed to lead the charge. Soon thereafter he began buying computers and software for the business. Noah felt it was possible they might start to experience pushback from someone. Indeed Dan's father, a bishop, also worked at the company. Although they expected pushback, they did not expect that it would come from Dan's father. When it did, Noah and Dan were shocked, that "he put the brakes on it." Dan's father came to them and said, "You know, we can't keep going like this." According to Noah, "it hit Dan and I like a ton of bricks."

In order to resolve this predicament, the men came up with a solution. All of the computers and software used in the business purchased by his company were simply *given* to one of their external vendors although they remained physically on the desks of the employees at the company for their everyday use. According to Noah, "they made a hand-shake deal." There's no official contract but the vendor, who has a Mennonite background, is the official owner of the system, Noah said. This man could come in at any time and claim the whole system as his own. Noah does not see this as a possibility though because the vendor has a vested interest in the company doing well and, in order to do well the system needs to be in place. (See Figure 1 below for images from the computers in Noah's business). This is yet another example of a designed socio-technical precarity that increases uncertainty and dependence on someone else in a way that could directly affect the welfare of Noah's business.
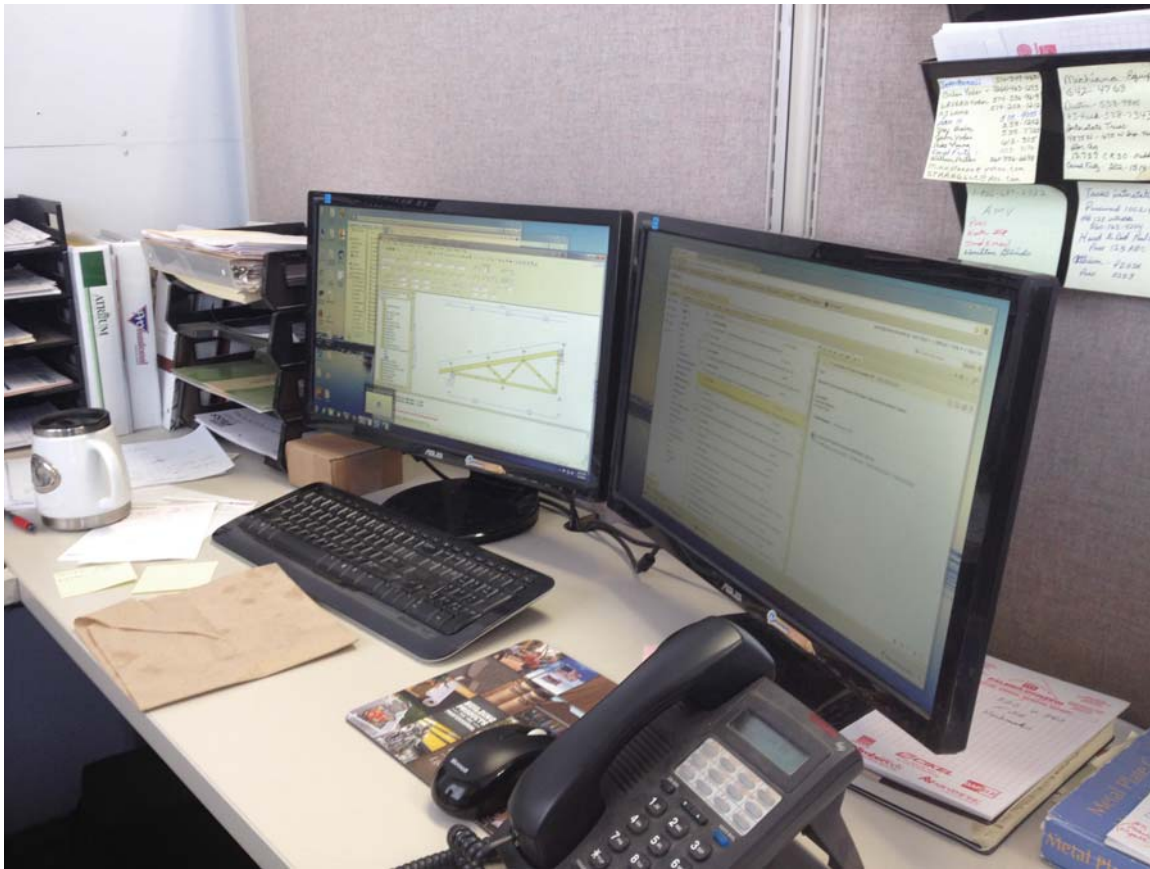
**Figure 1: Computer monitors in Noah's business**—One of Noah's co-workers has two monitors connected to his computer. He designs buildings with a computer aided design software package on the left and checks email on the right.

Noah explained to me that this solution had a precedent in Amish ways of adopting new technologies that were seen as essential business tools for competition in today's economy. It follows the arrangement for car ownership and use in Amish communities. Cars cannot be owned, but they can be used. He told me that this model has even been extended to allow Amish businesses to *lease* vehicles for use as work tools as long as a non-Amish person drove them. So, if they were rented or leased from a non-Amish person and driven by a non-Amish person, they could be used for work, he said. This was the same model that allowed his company to use computers that technically belonged to someone else. Noah felt this arrangement was a little cumbersome and perhaps even a bit silly. He knows he needs the technology for his business to continue to succeed, but he told me he felt guilty having and using the technology. I asked him if perhaps the unique arrangements were intended to do exactly that: remind him of his values on a daily basis. Because he felt guilty, maybe he was more likely to use the technology in limited ways that adhered to his religious values. He agreed this was indeed a possibility.

Noah's business connects to the internet through a wireless broadband signal distributed through an antenna on a nearby silo. He pointed to it through a window while we were talking one day (see Figure 2). The silo sits on an Amish farm. I was curious about this arrangement. So, when I got home from my field visit, I googled, "wireless

broadband" in the city where Noah's business is located and found a company called "Copper Wireless" that installs broadcast towers for internet signals on tall towers and silos throughout Noah's county. On the company's website they ask,

> Want Copper on your tower or silo? It's impossible for our engineers to find every good location to broadcast our Internet services. Even though we are searching everyday for new broadcast locations we might miss a few. Don't hesitate to give us a call if you own a tower over 80 ft tall or have a silo on your property (Copper Wireless http://www.copperwireless.net/about.html).

This wireless internet signal is received via an antenna at the customer's residence or business. In theory, it is possible for many Amish folks in the county to connect to this wireless broadband infrastructure. If they subscribed to the service, they could have WiFi in their home or business and access the internet via mobile device or computer. I was surprised by the materiality of this infrastructural design on two fronts. First, I was surprised that an Amish farmer would agree to the installation of a WiFi antenna on his property. Second, I was surprised at the relative ease and invisibility of the adoption of broadband among the Amish given such an arrangement. Certainly, Copper Wireless would have non-Amish subscribers who live in this area too, but much of this area is populated by Amish and many of them have silos on which an antenna could be installed. Certainly Noah and his co-workers are not the only Amish adopters of this service in the area. What perhaps surprised me most about this, is the visibility of the antenna—It is available for all to see. However, the fact that Noah's business subscribed to the service was not visible to anyone except the employees of the company.



**Figure 2: Wireless broadband antenna atop a silo on an Amish farm**

It is likely that I only learned about the socio-technical arrangement of computer ownership and internet use in Noah's business because of the strength of my relationship with Noah. Others were not likely to be so forthcoming in conversations with outsiders who wanted to publish their responses to controversial questions. In fact, when entering Noah's business, computers were not in sight. The retail portion of the business appeared to abide by Amish conventions, although it was hooked up to the power grid, which was visible in the adoption of electric lights. When I visited Noah at work, he took me to a separate part of the building to meet with his colleagues and/or chat. They had desks with computers and monitors sitting on them in offices out of the sight of public visitors. I observed many similar examples where participants who felt they needed computers and had them on their property, used them out of the sight of the public. In other cases Amish participants used internet enabled computers they did not own in public—Amish patrons at the public libraries are an example. If Amish individuals were not using public computers at the library—that is, they were using them at work or home—they typically did so out of the view of others as a show of respect for Amish tradition (or fear of being seen owning such a device). Using internet-enabled computers in public places like at the library or at school (for Amish youth who attended a non-Amish schools) was generally considered socially acceptable among the business and church leaders with whom I talked. However, using internet enabled mobile devices or computers in an Amish business or home was not. In other cases Amish business owners had employees and/or relatives who were not Amish who made use of computers, software and the internet for them. These arrangements, while not ideal (not using the technology at all was the best case scenario), were generally acceptable according to church rules, as they mimicked already approved arrangements that allowed people to make use of automobiles.

In many cases where Amish business-owners needed to communicate with networked outside vendors, they created workarounds with approved technologies that allowed them to communicate without using email or the internet. For example, Amos, a 28-year-old hardware store and machine shop owner in southern Indiana, did not use the internet or computers in his business. This presented problems for him because he could not look up parts numbers for his repair business any more. His suppliers no longer printed catalogs. So, he used his fax machine, which was allowed by church rules, to get information about new parts/products and place orders. In addition, he used an old catalog to find parts numbers for older parts/products. In this way, because Amos did not use the internet to order parts, he cobbled a precarious solution together that enabled him to accomplish a specific goal. His solution was limited and controlled as it allowed him to utilize global information infrastructures in ways that benefitted his business, but would not open unfettered channels over which unwanted information could flow into his mind or be accessed by other members of his family (this business, like many Amish businesses was on the same property as his family's home).

One day in northern Indiana, I walked into a business Noah mentioned to me a few times. He suggested I may be interested in interviewing someone who works there. I had the address and knew the name of the business but the outside was unmarked and completely unassuming. In fact, I could hardly figure out where the front door was. I had not called ahead or scheduled time to meet with anyone there. When I arrived, I

explained to Ben, the 31 year-old office manager, who I was and asked if he could answer a few questions. He welcomed me into his office which was illuminated by electric lights while he sat at a desk in front of a computer with an excel spreadsheet and his email client open. Ben told me that he is one of 16 full-time employees working for his cousin who owns the business, which coordinates auctions where machine parts are sold. When the company started, their business was conducted entirely offline. The owner began his company by going into manufacturing facilities across the Midwest after the operations had been moved out. According to Ben, in many such facilities operations had been moved to Mexico or another place where labor costs were cheaper. In their wake, however, a lot of machines and equipment had been left behind. Ben's cousin goes in and picks up the leftover equipment and machines. He parcels them out and auctions them off. Today, the business is largely run online and does approximately 1.9 million dollars in sales on a popular online auction site each year. The people who work there list items on the auction site. In 2013, Ben said, they listed 11,000 items online. In 2014, he planned they would list 22,000 and he thought they would grow that much again in 2015.

In my conversation with Ben I realized this was a highly unusual business venture for Amish owners. I asked if the church had ever pushed back against what they were doing. He said, yes, at one point the church did push back against their move from offline to online auctions. In response the owner brought on two non-Amish owners/investors. According to Ben, they are assets to the company because they are "good numbers guys." The owner and employees meet with the non-Amish owners/investors once a month or so to set goals and work together to meet them. They are not, however, involved in everyday processes. "They are more involved paper-wise and are strategic leaders," according to Ben. The owner is an expert in the auction business, having run it offline before going online, so he is more involved in the day-to-day processes. The team is pretty well balanced and works well together, according to Ben. The online part of it helped make it much bigger, he said. When the owner divvied up his portion of the company, and shared it with non-Amish owners, he gained approval from the church to conduct his auction business online. This is yet another example of designed socio-technical precarity aimed at protecting Amish professional traditions and religious practices, while modifying business practices that bring needed economic resources into the community.

I also asked Ben if they experienced any pushback from other members of the Amish community because of the high-tech nature of their work. Ben said, "no, you wouldn't get that [in the northern Indiana settlement]. Just like in the non-Amish community there are people who are really good at technology and those who aren't, those who like it and those who don't, those who understand technology well and those who don't." Ben was brought in as office manager because he is good at technology and maintaining an organized office. They have the technology though and do a good business. He has a 16 year-old flip phone, and internet, and computers at work. He said he has had the same phone his whole life. In his church cell phones are allowed, though. "I wouldn't take my cell phone to church or answer it at church or show it to the neighbor and say, look at what I've got' if their church doesn't allow it. You have to use it respectfully," Ben felt. According to Ben, if used responsibly, technology was not a big deal. In fact, in relation to the other participants with whom I spoke, Ben seemed completely

unconcerned about the impact of new communication technologies on human beings. He said he sees the perspective of senior bishops who do not want new technologies coming in. Ben feels these individuals do not understand new technologies. Nonetheless, he felt their views were respectable. He also believed, however, that technology would keep on progressing. "Sure we want to keep our close knit community together, but we also feel like you have to make the most of what you have and this is what we have." He said, "you know, we could do this without the technology, but why would we? We're using technology in a way that doesn't conflict with our morals." In this way, Ben feels that having knowledge about technology and creating limitations on use using that knowledge allows him to use technology in ways that aligns with his Amish beliefs. For him, his values motivate him to use technologies in controlled and limited ways.

Robert, a rather conservative businessman from northern Indiana, took a different approach. Robert had a tourism-oriented retail business and felt it was beneficial for him to advertise to attract customers. In order to "stay away from tech as much as possible," though, he used outside vendors to do his advertising for him. In particular, he used a "print shop"—a common type of business in Amish communities that produces advertising materials like fliers and catalogs. Often, they might also produce books, directories and/or a popular local magazine geared to Amish readers containing information about local events. The print shop Robert used in northern Indiana sends emails out for him. I interviewed the owner of the print shop and one of his colleagues and they explained that they were quickly entering the business of using of ICTs for their Amish customers. Robert is far from the only customer on whose behalf they send emails. This allows business-owners like Robert to make use of computers, email and the internet without doing it or owning the technologies themselves. Robert also utilizes the county visitor's and convention center bureau for web advertising. Robert told me that he feels pressure to use the web because his customers frequently ask where they can go to buy his products online. By paying others to use advertising technologies for him, he designs a socio-technical arrangement that enables him to abide by his religious and cultural values, while acquiring the resources he needs for financial survival. In addition, he develops and maintains a mutual dependency on local external vendors he trusts. In this way, Amish improvisation introduces precarity into socio-technical arrangements. This is an acceptable externality as acts to strengthen local networks and social systems of economic support in the region.

In my interview with the non-Amish owner (his parents are ex-Amish) of a printing company and his colleague, I learned a great deal about the various services they offered to Amish businesses. Many services helped them advertise their products and made the internet accessible without the clients having to own the devices or use them first-hand. For example, many of the company's clients are wholesale furniture manufacturers who sell their products to furniture retail stores across the country. This printing company produces catalogs for furniture makers to give to retailers so they know what they produce. The retailers often ask wholesalers for a PDF version of the catalog and put it online where it is linked to the retail store's website. In the printing shop's discussions with some of their clients, they have suggested they help the business owner put the PDF online themselves. Then, the printing company can provide the retailer a secure login, so the catalog is not open to the public. The printing

company owner felt this was a necessary baby-step toward full adoption of the internet by Amish businesses in his community.

I asked if he felt it was inevitable that Amish businesses would start moving some of their operations online. He replied, "Yeah. It's happening now." He described a variety of precarious socio-technical arrangements involved in the services he and his colleagues provided like sending out "email blasts" for clients. For example, one furniture maker had a tradeshow coming up and wanted to send an electronic message to all of the dealers who would be at the show (his primary customer base). The printing company owner said,

> We used Mail Chimp and sent an email blast…to all the dealers that are part of that show. This was a personal invitation from [the business owner] as one of the builders who was going to be there—saying come see us while you're [at the show] and come see our new line of furniture. So, yeah, it's happening. But it's still not everybody.

In numerous ways, the printing company acted as an intermediary or buffer between the Amish and the outside world. They provided (and charged for) many services that enabled their Amish customers to utilize ICTs without having to own them or use them themselves. The printing company's owner's parents left the Amish church when he was one year old. He grew up with Amish grandparents and speaks Pennsylvanian Dutch. He told me his business does well catering to the Amish businesses in the area partly because he has 100 Amish cousins who are business owners and he can ask them about what services are needed and which ones the community might not quite be ready for yet. Because of his background, the printing company's owner was seen as a trusted vendor and colleague among Amish business owners in the settlement. His pseudo-insider status was an advantage for him in attracting the business of Amish business-owners in the area and made him an ideal candidate for mediating the internet and email use of his Amish customers.

The print shop owner was considering a number of different services he could provide to facilitate the Amish use of the internet through his company. For example, he wanted to provide a room at his office, which is located in the Amish settlement, for people to come in and use computers. He would then charge individual users for the time they spent on the computer, much like at an internet cafe. Because many companies have been forced to buy supplies online, he thought this would allow them to buy their supplies without owning a computer or paying for an internet connection. Currently, the print shop will go online and order parts for their clients, if suppliers demand that orders be made online. This is a service for which they charge their customers. According to the printing company owner, one client has an engine repair shop and his dealers require him to order parts online. He used to be able to write out the order and fax it in. His dealers will not allow that anymore. So, now he writes them out and faxes them to the printing company where they go online and place the order for him. The printing company then charges the client a nominal fee each time they do this.

In another example, the printing company makes the paper catalogs they produce for clients available to individual customers online (instead of just retailers). According to

the printing company's owner, when they do a client's catalog, they want to make sure they have versions of the company's photographs that also work on customers' computer and mobile screens. The lower resolution images are used then in the online PDF of the catalog. He said, "We did that for [a client]…and when we showed it [to him] we could show him exactly who opened it and who didn't—and he was like 'Oh, wow that's cool!' And, in fact, we're using him as a…We're going to set up a sample furniture website to show some of the others. And we are going to ask him if we can use his furniture to do that, and he was all excited. I have a feeling he will end up with a website because…at least that's sort of our plan." The owner's colleague added, "And if he does, that would be our first Amish website." According to these men, there are Amish businesses in the area that have websites. One of them is even owned by a bishop, they said. When I asked about this, the owner said, "Well he has a son that's not Amish…A lot of times the way to get around those prohibitions of technology is to get a partner who is not Amish and then it's okay."

To further indicate the amount of change that has occurred in the area on the adoption of ICTs among the Amish, the owner recalled an experience he had 20 years ago, when many Amish businesses were extremely averse to having anything to do with the internet. At that time he was part of the local area merchants' association. He remembered that the association was assembling their annual brochure and decided to put it online. A number of the Amish businesses involved in the merchants' association were upset by this and pulled out of it. One of those, he said, was the bishop that now has his own website. Reflecting on this the print shop owner said, "So, in just 20 or 22 years he went from, 'Oh nope, I'm not even going to be a member if you do that.' And they were just listing the businesses, to today where he has his own website for his business."

Going forward, the owner feels that the competition in his own industry will be heating up as Amish businesses start venturing into online commerce. Among his competitors in the region, he said, "we've all kind of agreed that we won't go after the other people's customers. If they're unhappy, they'll come to us kind of a thing." However, recently, a new player came onto the scene and,

> [They] are out there hitting all of our customers trying to get them to do websites. We found out about that and we got a bit more aggressive on it. We called up all of our customers and said, 'We're not saying you have to do a website, but if you do, we do websites! We'd be happy to talk to you. You don't need to go with them.

Another service the printing company provides is to broadcast the local high school's basketball games on the web. According to its owner, more and more Amish young people on Rumspringa have smart phones. When he was at a trade show not too long ago,

> A kid came up and said, 'I used to be able to get [the broadcast of the basketball game]. Why is it not working?' He wanted me to show him how to use his smart phone so he could listen to us…During that age though, it's ok. Anything goes pretty much. Maybe even a little too much sometimes.

In this way, Amish young people are given a pass (in some cases) to own and use ICTs until they decide to become baptized members of the church. When they officially become members of the church, they are supposed to "give up" the devices and abide by the church's rules. Some informants mentioned that parents actually benefitted from having a son or daughter who was not yet a member of the church, as they were able to use their mobile phones or have their son or daughter email and/or go online for the family business.

The day I visited the printing company they had just hired their first Amish employee. The owner told me he visited another printing company in the Amish settlement in Holmes County, Ohio to see how they did things there. When his guide led him through the design department, "it just floored me!", he said. "They had all these Macs sitting around and all these Amish girls sitting there working on them doing design work." The owner said, from the perspective of the owner there, he liked that they came in with no experience and no training because he could train them the way he wanted them trained. "So, we thought we'd give that a try." Their employee is a 15 year-old female who has completed eight years of schooling. They hired her because they feel she is very smart, but does not have much experience with computers. To start they wanted to train her to be able to make small changes in the ads in their flagship publication—a black and white advertising magazine serving the Amish communities. This publication comes out every two weeks. Eventually, they may ask her to design the layout and run sheet. But, they are starting from scratch with her, "She's never used InDesign," the owner said. The other thing that constrains her professional potential is her anticipated fulfillment of Amish gender roles. "She may not quit right as soon as she gets married, but when the first kid comes along, she'll be gone. So, we've gone into it knowing she may only be here for 4-5 years. But maybe that's okay," the owner said.

In my conversation with the owner and his colleague, I learned that the economic downturn of 2008-10 had a real impact on the local economy. Many of the RV manufacturers, the largest employers in the area, were laying workers off left and right. I asked if this was bad for the printing company's business too. They said, actually, it sparked new sources of revenue for us. Many of the Amish workers who were laid off from their work at the RV manufacturers started their own businesses. In order to acquire customers they began advertising with us, according to the owner. The number of mom and pop Amish businesses in the area increases all the time and they are pushing into new areas, they said. In a rather surprising example, the owner knew of an Amish business where optometric services were being provided. At this business, a licensed (non-Amish) optometrist would come in twice a week to perform eye exams for customers. The Amish owners did the bookkeeping and outsourced the purchase of the eyewear. They made a profit by marking up the eyewear and the optometry services. They did not make the glasses or the frames themselves. According to a printing company employee who patronized the shop, it was much cheaper than going to Wal-Mart, where he usually went for optometry services. Such endeavors, according to the printing company owner and his colleague, are widespread among the Amish in their area and are only increasing as individuals develop their own professional enterprises instead of working as day laborers for large factory-style manufacturers. This type of work is preferred because it enables people work at home with family members.

The printing company owner once interviewed a man who started making mattresses because he was laid off for an article in a manufacturers' catalog. While he had been making really good money at the factory, he always wanted to start a business he could pass down to his kids. But working at the factory was too easy. The man would go to work at 4 o'clock in the morning and work eight hours. Then he would have the rest of the day to himself. Getting laid off forced him to start the family business. Today, the kids are basically running the business. The man went back to work in the factory as the economy picked up because the mattress business has not quite grown big enough for him to be engaged full time.

The printing company owner told me he bought his printing business from an Amishman who, he felt, "was technologically ahead of the rest of us." Because he ran printing presses, he was forced to have electricity. However, he did not get his electricity from the public grid. Instead, he had solar panels, and a wind turbine. He collected electricity in huge battery packs and used it to run his business, according to the owner. His presses were pneumatic. "He was ahead of the curve. He leap-frogged over us. And he's an Amishman…The solar power and the wind—that's a big thing in the Amish community," the owner said.

**Amish Artifacts: Functional Symbols of Amish identity**

In TPCBE a number of unique technological artifacts are advertised for Amish business use. These devices are particularly noteworthy, as they perform certain practical functions but also help identify users as uniquely Amish. In this artifact analysis, Amish values become visible in the design of devices not typically seen in non-Amish technologies. For example, inconvenience is a desired value in that it acts as a speed bump making it difficult for users to engage in undesirable behavior. Publicity of communication instead of privacy of communication is preferred so that members of the family or local community can hold each other accountable for their actions. Immobility instead of mobility is preferred, because it is seen to keep members of the family physically together instead of making it possible for them to communicate (less meaningfully) from afar. Similarly, the collective instead of individual ownership of devices is seen to encourage public, visible communications so that people can hold each other accountable for their actions. And the ability to communicate emotion via face-to-face modalities is preferred over technologically mediated modalities because it is seen as better for the maintenance of strong local social network ties. The devices that appear in TPCBE, because of the publication's widespread circulation among Amish entrepreneurs, shape Amish imaginations and help establish standards about what technologies are acceptable for adoption.

*PcFreeMail*
In the course of my fieldwork I met business owners like Daniel, a furniture maker, who had begun using a service I was aware of because it was regularly advertised in TPCBE, PcFreeMail. Over the years, his business contacts (primarily non-Amish individuals) moved all their ordering functions online, but Daniel does not use the internet or email in his business. He used PcFreeMail to communicate with his dealers and other business contacts. It is a unique service popular among the Amish that allows

users to exchange emails via fax machine or word processor. According to a recurring full-page advertisement in TPCBE, PcFreeMail "is an affordable service that allows you to use your existing fax machine or word processor to send and receive email without the need for a computer or internet connection." It helps businesses "thrive in the computer age where email is becoming a necessary means of communication," according to the ad. The service is explained through images that indicate a message, photograph, invoice or quotation can be sent from "their computer to your fax machine. The service receives the email, translates it into a fax and then sends it to the recipient. When a non-emailing end-user receives a message, it is automatically printed by his or her fax machine. Each non-emailing user has his or her own email address so that others can send them "emails" using PcFreeMail. One can also send messages through the service to others' email addresses too. To send a handwritten or typed message through the service, one simply writes the recipient's email address at the top of the first page then faxes the message to a dedicated access number. The PcFreeMail system "instantly converts and sends your message in a professionally presented email." (see Figure 3 below)
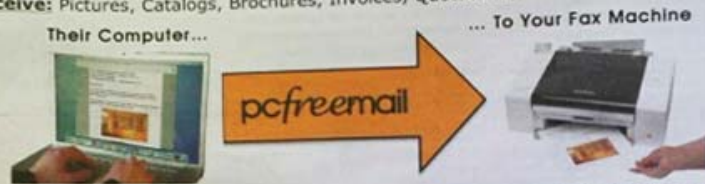
**Figure 3: 2014 Advertisement for PcFreeMail computerless email service**
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Daniel also does ninety percent of his business with furniture dealers and retailers. In order to receive high-resolution images of their orders and blueprints, he designed an ad hoc communication system to solve a problem he encountered with PcFreeMail: he could not receive high-resolution files using the service. To do this, he installed a printer in his office that was networked to his dealers' computers. So, when a dealer wanted to "send" them an order, they would simply print the order to Daniel's printer, which

physically sat in his office. In adopting PcFreeMail, Amish business owners like Daniel limit the functionality of their technology, only allowing it to work for certain purposes. Having PcFreeMail instead of an open email connection limits the communication functionality in ways that adhere to Amish values and practices: there is no connection to the public electric grid (often fax machines and printers can be run off of generators, solar and/or battery power), the unfettered internet is not accessible to users, the content of an email is not private (it is received by the service and then emailed after it has been transcribed), and a computer is not required, though a telephone line is needed for facsimile transmission. Users can use the service to accomplish the necessary task of communicating with external vendors who no longer communicate via fax or snail mail. By adopting this service, users are also showing deference to Amish professional convention and identity.

*Plain computers*

In my fieldwork I also met people who were using devices that comprise a new and very popular genre of personal computers colloquially referred to as, "plain computers." The first plain computer, the "Classic Word Processor" was created by "horse and buggy" Mennonite, Allen Hoover for use by fellow Anabaptists in 2005. As the early advertisement below claims, it is "made specifically for the plain people by the plain people." According to a 2007 article in the *Farm Show* magazine, Hoover runs a Pennsylvania business that retrofits wood-working tools for people who use alternative power sources, like the Amish. He came up with the idea for the plain computer when other companies stopped making word processors in the late 1990s. "Many plain people accept word processors," Hoover said. "Computers aren't acceptable because of their connectivity to the world through the internet, and their ability to add programs and store photographs," the article continues. When Hoover designed the Classic Word Processor, he met with individuals from Amish church groups to see what was acceptable to them. He found out that they wanted the capability to make spreadsheets, do word processing and simple drawings. "Spreadsheets is the part of it that drove the whole project," according to Hoover. "Amish business people use it for everything from inventory to tracking to creating receipts." Hoover also installed open source programs on the machine and locked it down so that programs cannot be added after the purchase of the device. Working with computer programmers, Hoover adapted the open source programs he loaded onto the machines by removing features like an address book, which connects to an email client (2007 Farm Show). Because programs cannot be added by users, Hoover installed 600 printer drivers on the machine to make sure it would successfully connect to the user's printer, no matter the model. The Classic Word Processor is "10 times as fast and has 100 times the memory of old word processors…and it functions similar to a 5 year-old computer," according to Hoover. At an introductory price of $798, sales have been great since the word got out, he said.

The Classic Word Processor is an important Amish innovation and set the bar for later indigenous ICT development in its unique ability to allow users to complete typical 21$^{st}$ century work functions while omitting the objectionable functionalities that the Amish do not want. Plain computers like the Classic allow an individual to write up, edit and save documents in programs like Microsoft Office including text based documents, spreadsheets, invoices and many are also capable of drawing things electronically and

printing. However they appeal to Amish customers in that they have "no modem, no phone port or internet connection, no outside programs, no sound, no photographs, no games or gimmicks," according to the original Classic advertisement. "Nothing fancy. Just a work horse for your business."



**Figure 4: 2007 Advertisement in Farm Show magazine for the Classic Word Processor**

A 2014 advertisement in TPCBE reflects a few changes to the technical specs and the socio-technical affordances listed in the device's description (see Figure 5 below). For example, in this newer device, an 8-inch display was replaced by a 12-inch display and a dual core 3 GHz processor, 4GB RAM and 500GB hard drive have been added. In the new ad, the listing the limitations on internet connection, sound, images, etc. has been removed. The new product description boasts an "unequaled 'power to cost' ratio" and a "recognizable non-computer appearance" as noteworthy and attractive characteristics. Additional information about Classic Word Processors cannot be accessed via the web, using a simple search. However, calling local dealers for more information is possible. For yet another recent ad for the Classic Word Processor see Figure 6 below.

**Figure 5: 2014 advertisement for the Classic Word Processor.** Reprinted here with the consent of *Plain Communities Business Exchange*.

**Classic Word Processor**

"The original word processor".

**Are you wondering why you should buy a CLASSIC Word Processor?**

- **The safety factor**
  → Has no multimedia (moving pictures, sound etc.), no email, no games, no Internet.
  → Cannot run any Windows© computer programs.
  → Does not have the option of adding programs as the customer desires, you get what you see.
  → Has a unique non-computer appearance.
  → The Classic Word Processor is more limited than a locked down Windows© computer, but this is the price paid in the name of safety and honesty.
  → Proven track record since 2005.
- **Tools to help your business succeed**
  → OPENOFFICE.ORG, includes the following powerful programs
    ✗ spreadsheet; *create almost any kind of record keeping & calculation files imaginable.*
    ✗ drawing; *make line drawings, and graphic designs.*
    ✗ word processing; *write letters, user manuals, and even books.*
  → Many prebuilt spreadsheet templates, and special customization are available.
  → QCAD technical cad drawing program.
  → Professional training seminars for the above programs, to help you be efficient.
  → PDF reader allows you to read many parts & service files.
  → CLASSIC ACCOUNTING© a full featured, multi-user accounting program, was created under the oversight of experienced accountants & bookkeepers.
    ✗ *Get the financial information you need to manage your business.*
    ✗ *Easily transfer data to accountants computer, or, print the records you need at tax time.*
    ✗ *Monitor your company's financial health. Comply with standard accounting practices.*
    ✗ *Manage receivables, payables, and cash flow.*
    ✗ *Create estimates, sales orders, invoices, sales receipts, credit memos and statements.*
    ✗ *Easily do item inventory tracking and manufacturing*
    ✗ *View customer, vendor & item history.*

**For more information contact your local dealer.**

Classic Sales & Service – Ephrata, PA • 717.733.8948

Brubaker's Sewing – Wisconsin • 715.229.2851

Data Solutions – Kutztown, PA • 610.683.6345

Jeremiah Ramer – Indiana • 574.862.1795

Joseph Miller – Ohio • 330.897.1165

**Figure 6: 2014 Advertisement for the Classic Word Processor.** Reprinted here with the consent of *Plain Communities Business Exchange*.
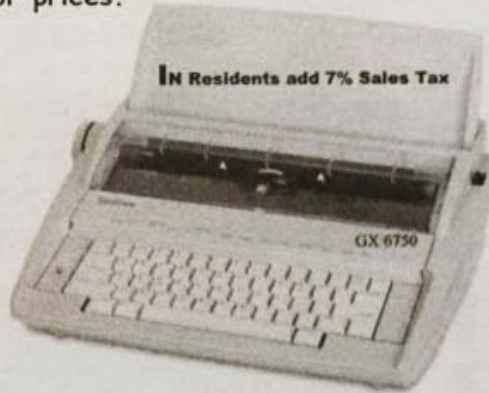
A wide variety of other plain computers have also been developed and appear regularly in current TPCBE advertisements (2014). Deskmate makes six different word processors advertised (see Figrure 7 below), for example. Unlike the Classic, the Deskmate devices run Windows and QuickBooks, offer local area networking capabilities and automatic backup functionality. One Deskmate device looks like a regular computer, one like a laptop and one appears to be a tablet. The other three have recognizable non-computer appearances (a feature listed as desirable in the Classic Word Processor advertisement). These two manufacturers seem to appeal to different clients, the Classic is likely geared more toward more conservative Amish

customers and the Deskmate line is likely aimed at more religiously and politically more progressive customers.



**Figure 7: 2014 Advertisement for Deskmate's word processors. Reprinted** here with the consent of *Plain Communities Business Exchange*.

Other examples of plain computers appearing in the pages of TPCBE include the Plainbook, the Pleasant, the Pioneer and the Guardian (see Figures 8, 9, 10 and 11).

**Figure 8: 2014 Advertisement for the Plainbook word processor.** Reprinted here with the consent of *Plain Communities Business Exchange.*

**Figure 9: 2014 Advertisement for Pleasant word processor**. Reprinted here with the consent of *Plain Communities Business Exchange*.

**Figure 10: 2014 Advertisement for Pioneer Diamond data processor**. Reprinted here with the consent of *Plain Communities Business Exchange.*



**Figure 11: 2014 Image of the Guardian data processor from an advertisement in TPCBE**. Reprinted here with the consent of *Plain Communities Business Exchange.*

The Pioneer and Guardian offer a few additional features and are described as "data processors" rather than "word processors" like the others. These two offer features that help "protect" and "secure" data and information including a "custom welded and riveted aluminum case with keyswitch startup" on the Pioneer. In the advertisement where the Guardian appears (the picture above is just a portion thereof) the company who sells the device reports that they offer "office tech and data services" broadly. Their ad reads, "We are here to help you make the transition from paper to more efficient electronic accounting. Special expertise in networking and security. Community businesses trust us for providing safe equipment and blocking productivity threats." Other ICT artifacts in the plain computer genre appearing in TPCBE include a battery powered typewriter and a device that performs computerless email (see Figures 12 and 13 below).

**Figure 12: 2014 Advertisement for Battery-powered typewriters**. Reprinted here with the consent of *Plain Communities Business Exchange*.

**Figure 13: 2014 Advertisement for Computerless Email.** Reprinted here with the consent of *Plain Communities Business Exchange*.

*Community conference phone line*

In addition to these devices, TPCBE also facilitates a free informational service made accessible via telephone called, "PCBE Free Information Line" (see Figure 14). A live presentation and discussion is arranged monthly that allows business owners to learn about a specific business related topic. Often the topic of the discussion relates to a recently published article in TPCBE. Previous topics for the discussions include, marketing, creating better banking relationships, preventing business fraud, economic issues, legal issues, collecting unpaid debt, workplace safety, applying biblical principles at work, and lean manufacturing techniques among others. Business owners access this service by telephone on a date and time printed on the 'Contents' page of the monthly issue. Presentations and discussions are recorded and archived, making them accessible if readers/users missed, or want to revisit a topic after the fact. They are accessible to anyone who calls the phone number in TPCBE. In the non-Amish world, business professionals seeking information for improving their business practices would likely go to the internet. In the absence of such resources, TPCBE itself publishes a number of articles and essays exploring such topics. To augment its written information, it also helps organize the PCBE Free Information Line to encourage more dynamic and interactive forums for learning and business development among members of its readership.

**Figure 14: 2014 Advertisement for Free Information Line.** Reprinted here with the consent of *Plain Communities Business Exchange*.

*Plain cell phones*

In addition to the plain computers advertised in TPCBE, two basic types of plain cell phones are also advertised. The first type is specifically identified as "plain cell phones" by a telecommunications company targeting Amish customers, as indicated by man wearing plain clothes in the ad and the horse and buggy in its logo. These phones are basic flip phones that have "no games, no camera, no internet, no text messaging." Also it is a free phone with no contract (see Figure 15 below). In the field, many participants

told me they bought their cell phones from such providers, often from companies in Pennsylvania, like this one.



**Figure 15: 2014 Advertisement for plain cell phone service**. Reprinted here with the consent of *Plain Communities Business Exchange*.

The second type of mobile phone appearing in TPCBE advertisements is the black box phone I discovered in my fieldwork in southern Indiana. In TPCBE advertisements all of the components needed to operate a black box phone often appear for sale by one vendor. These products include various models of landline phone that are compatible with the black boxes, the black boxes that connect the phones to the cell network, the batteries and/or solar panel and accessories that power the two and bags for carrying them (see Figure 16 below). In the advertisement in Figure 16, it is clear that the vendor is targeting Amish and conservative Anabaptist religious groups in the declaration (in Pennsylvanian Dutch), that he or she speaks the Amish native dialect, "Ich kann Deutsch," or "I can speak German."

**Figure 16: 2014 Advertisement for Black Box mobile telephone devices and service.** Reprinted here with the consent of *Plain Communities Business Exchange.*

**Conclusion**

All of the ICT services, artifacts and arrangements appearing in these advertisements act as objects that accomplish two simultaneous tasks among Amish adopters: 1) They are tools that allow them to perform high-tech work functions in accordance with Amish values and 2) They symbolically identify the user as particularly Amish. It is important to note that the appearance of these objects in the pages of TPCBE identify them as intended for purchase and use among Amish business owners. TCBE readers are likely leading new and growing enterprises through challenging and changing economic times in their local communities. Many of them are early adopters in their communities because they feel pressure to adopt such devices and services in order to maintain a

competitive edge in their local economies in order to ensure the accumulation of resources for their families and communities.

Purchasing and using the devices observed here help users perform a communicative function, often related to work. The communication the artifact or service makes possible, given the particular material qualities of the device or service, allows the user to do so while abiding by the religious, cultural and political values that tie Amish people together. The methods by which these devices enable users to perform communication are similar in that they limit a user's ability to access the internet, or outside information, they do not allow a user to accomplish entertainment-oriented communication like watching videos, taking or viewing photographs, listening to music or playing games. However, they do allow users to have telephone conversations while on the go. They allow users to draft work-related documents, keep track of inventory and create blueprints using computer aided design software among other things. In the rare case a device or service enables users to email, it does so in a way that either severely limits the functionality of the device or introduces designed socio-technical precarity. For example, the Computerless Email device is intended for the sole purpose of sending and receiving email. The screen is very small and it is not possible to do anything else on the machine except write and send emails. The PcFreeMail service introduces designed socio-technical precarity as it requires the use of a fax machine to send and receive messages through a third party who translates and sends them to their intended recipient.

Additionally, the devices are also made to be visible, durable and secure. The visibility of the black box phone is instructive as it allows mobile conversations to occur, but unlike conversations via cell phone, talking on the landline connected to the black box is highly visible to others. The fact that some of the plain computers cite the fact that their device has a durable case and a "keyswitch" lock that opens the machine for use, reflect a desire for use to be visible and for data to be protected from accidental or purposeful physical destruction or intrusion.

By creating and using unique artifacts and arrangements, inspired by particularly Amish values, Amish makers deploying a political tactic. Namely, they identify themselves as particularly Amish. This shows deference to Amish rules, values and traditions and helps sustain Amish social structures and reproduce Amish identity. Importantly, through idealizing the Amish maker and reproducing the spirit of Amish making in this new socio-technical epoch, making continues as a dominant functional activity and mundane aspect of everyday work. When viewed through a critical making lens, mundane making among the Amish, as identified in the arrangements and artifacts described in this chapter, becomes a significant political move. By emphasizing the importance of continuing to create things that reflect Amish values, not those of the outside world, members of Amish communities remind themselves that they are different from outsiders and similar to each other. They privilege creation over consumption, which keeps ideological foci local instead of remote. This can be seen as one component of a larger strategy aimed at adapting ICTs for Amish use in a way that allows them to acquire the resources they need to survive in the modern economy while protecting their cultural autonomy from assimilation.

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